OA has been shown to be associated with poorer health status, indicating a need to further our understanding of the effect of LBP in the hip/knee OA population by moving beyond the constructs of pain and disability. The purpose of this study was to determine if having persistent low back pain (LBP) as well as adverse psychosocial factors, were predictive of future pain impact in people with hip and knee OA. We hypothesized that pain impact would be associated with pain catastrophizing, depression, anxiety, fatigue, and social support and that LBP and psychosocial factors would be predictive of future pain impact.
Methods: We analyzed data from an established population-based cohort of residents from Ontario, Canada who were 55 years or older and reported symptomatic hip/knee OA. Initial recruitment occurred between 1995 and 1997 through screening of 100% of the population in two Ontario communities. An initial cohort of n=2411 was followed annually using telephone interviews. The current study utilized data collected in 2006 (baseline) and 2008 (follow-up). Participants with inflammatory arthritis or a prior total joint replacement were excluded resulting in an analyzable sample of 462. The primary outcome was pain impact at follow-up using the Pain Impact Questionnaire 6 item version, a measure of pain severity, interference, impact and health related quality of life. The following standardized baseline measures were independent variables: Pain Catastrophizing Scale, the Centre for Epidemiologic Studies Depression Scale, The Hospital Anxiety and Depression Scale -anxiety subscale, Profile of Moods States - fatigue inertia subscale, the abbreviated Lubben Social Network Scale and the Western Ontario and McMaster Universities' Osteoarthritis Index (WOMAC). Persistent LBP in the past year (no/yes) was identified from a comorbidities questionnaire. Bivariate analyses compared participants with and without LBP. Next a sequential series of four linear regression analyses were conducted in the following order: 1. Psychosocial variables; 2. Psychosocial variables and LBP; 3. Psychosocial variables, LBP and demographics (age, sex, marital status, education); and 4. Psychosocial variables, LBP, demographics and disease-related variables (WOMAC summary score, knee pain, hip pain, hip and knee pain, BMI, number of comorbidities, multiple joint pain).
Results: The mean age of the 462 was 76 years (range 58 to 96), 77% were female and 35% reported LBP at baseline. Bivariate analyses revealed all psychosocial variables were significantly worse in those with LBP ($p<0.05$). In regression analyses, while baseline LBP was not predictive of future pain impact [ß 1.54(-0.04, 3.12) $p=0.06$], both greater pain catastrophizing [ß 0.20(0.09, 0.31) $p<0.001$)] and greater fatigue [ß 0.26 (0.08, 0.44) $p=(0.005)$)] were independent predictors of greater pain impact at follow up. However, these associations became non-significant when the WOMAC summary score was added to the model.
Conclusions: In a population-based cohort with hip and knee OA, baseline WOMAC summary score was the only independent significant predictor of future pain impact, suggesting that treatment be focused on limiting pain severity and functional limitations. Addressing pain catastrophizing and fatigue may also limit pain impact.

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ISOMETRIC HIP ABDUCTION STRENGTH IS NOT RELATED TO SINGLE-LIMB MINI SQUAT PERFORMANCE IN PARTICIPANTS WITH KNEE AND HIP PAIN

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Purpose: The single-limb mini squat (SLMS) test is a clinical test resembling activities of daily living assessing movement quality rather than movement quantity during single-limb squatting. A previous study investigating validity of the SLMS test, by comparing two- and three-dimensional biomechanics of the lower limb, found that a knee-medial-to-foot position was mainly caused by an increased internal hip rotation during three-dimensional analysis rather than knee valgus movement. This study aimed to investigate if a knee-medial-to-foot position during the SLMS was associated with reduced isometric hip abduction strength.
Methods: Participants above 35 years, with persistent knee or hip pain for more than 3 months were recruited. The SLMS test was conducted with the participants standing with the long axis of the foot aligned to the stem of a "T", marked by tape on the floor. The second toe was placed on the stem of the "T". A table with adjustable height was placed in front of the participants to provide fingertip support for balance. Participants bend their knee, without bending forward from the hip, until they were no longer able to see the line along the toes and then return to full extension. This was repeated 5 times at a speed of 20 squats/min. The contralateral leg was kept with the hip and knee slightly flexed. Practice trials preceded measurements. Participants were scored as having a knee-over-foot or knee-medial-to-foot position. Joint position was assessed by looking at alignment between the patella and the 2nd toe of the foot during knee flexion. If the knee aligned medial to the 2nd toe in three or more trials, the joint position was scored as knee-medial-to-foot. Maximal isometric hip abduction strength was tested using dynamometry (Powertrack Commander, Echo). Participants lay on their back on an examination couch with their leg strait and were asked to press their lateral malleoli away from their body. A suction cup was mounted on a door behind the examination couch. A strain gauge was placed in between the suction cup and a fixation belt placed on the participants' ankle. The distance from the trochanter major on the femoral bone to the middle of the fixation belt was measured. Isometric muscle strength was measured as torque (Nm) and normalized to bodyweight. Two practice trials preceded three maximal voluntary contractions, each separated by 60 sec. Assumptions for normality in the isometric strength data were checked.
Results: Ninety-nine participants were tested; age 59 ± 10.0 years (SD), 62 had knee problems, 61 were female. All participants performed the SLMS test on both legs. The most painful leg was used in this analysis. Forty-six of 99 participants had a knee-medial-to-foot position. Unpaired t-tests showed no difference in isometric strength in hip abduction in relation to joint position during SLMS test for either knee or hip as primary complaint, or for the total sample (table 1).
Conclusions: No difference was observed in isometric hip abduction muscle strength for participants with a knee medial-to-foot compared to a knee-over-foot position in the SLMS test. These results indicate that the increased internal hip rotation previously observed in those with a knee-medial-to-foot position during the SLMS test is not caused by reduced isometric hip abduction strength. Strength training to improve hip abduction strength may therefore not change the knee-medial-to-foot position.

Table 1
isometric strength in hip abduction in relation to knee position during single-limb mini squat

	Knee-over-foot (95% CI)	Knee-medial-to-foot (95% CI)	p-value
Knee (n=62), $Nm*kg^{-1}$	0.84 (0.71 to 0.98)	0.87 (0.74 to 1.01)	p<0.75
Hip (n=37), $Nm*kg^{-1}$	0.83 (0.64 to 1.02)	0.79 (0.62 to 0.97)	p<0.78
Combined (n=99), $Nm*kg^{-1}$	0.84 (0.73 to 0.95)	0.85 (0.74 to 0.95)	p<0.91

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EXPLORING THE REASONS FOR THE SENSITIVITY TO CHANGE OF A PATIENT PREFERENCE MEASURE COMPARED WITH THE KOOS QUESTIONNAIRE IN PATELLOFEMORAL OSTEOARTHRITIS

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Purpose: To detect the efficacy of treatments for OA, it is necessary to use the outcome with greatest sensitivity to change. Widely used surveys such as the KOOS and WOMAC have a limited list of activities that cause pain but may not cover all activity related pain that could be affected by treatment. The BRACE trial (ISRCTN50380458), a randomized trial of a patellofemoral brace vs. no treatment in patellofemoral OA used the 'pain on nominated activity' visual analogue scale (VASNA), a patient preference measure where each patient selects an activity which aggravates their pain the most, and then rates severity of pain in this activity throughout the trial. The trials also collected data using the Knee Osteoarthritis Outcome Score (KOOS). We found that the patient preference measure was moderately more sensitive to change to the effect of treatment than the KOOS pain scale (Ann Rheum Dis, 2015, in press). We now investigate how activities reported by patients in the VASNA overlap with activities covered by the KOOS pain scale, with the hypothesis that nominated activity related pain not covered by KOOS items accounted for the increased sensitivity to change of the patient preference measure over KOOS.
Methods: Activities nominated by BRACE trial patients as the activity that aggravated their pain the most were coded into common 'themes'. For example, patients reporting 'going upstairs', or 'using the stairs' would be categorised more generally as 'stairs'. We then matched these